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GOLF TEE MARKER SYSTEM**FIELD OF THE INVENTION**

- 5 The present invention relates to the field of markers and especially to golf tee markers.

BACKGROUND OF THE INVENTION

- 10 On tee boxes of golf courses, markers are used to indicate the tee off positions for golfers of different sex, age, ability etc. The markers are often moved so as to prevent excessive wearing of certain areas on the tee box and to provide a particular hole with a different length or degree of difficulty. The markers are also temporally removed by groundskeepers in order to mow or otherwise maintain the tee boxes.
- 15 As such, it is important to have markers which are easily picked-up and placed into the ground and effective means to accomplish the same and to store the markers when not in use.

- 20 The following patents are considered to be of general relevance to the subject matter of the present invention and are not believed to anticipate or render the present invention obvious, whether taken alone or in any combination.

- 25 United States Patent No. 5,029,855 (Jamieson et al.) entitled GOLF TEE MARKER AND RECEPTACLE discloses a marker for spiking into a tee box area having indicated thereon the distance to the hole and the position of the hole on the green or other information. Two removable spikes are preferably used so that the marker is not inadvertently turned since such turning would result in the display of false information. The marker comprises a circular opening on its top surface leading into a cavity in the form of an inverted cone for holding broken tees. The bottom of the
- 30 cavity has a small opening to allow drainage of any liquid.

United States Design Patent No. D 346,634 (Evers) entitled COMBINED BROKEN TEE RECEPTACLE AND TEE MARKER illustrates a flower-shaped tee box marker.

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The marker is open at its top and has a single spike for placement into the ground.

5 United States Design Patent No. D 311,431 (Weber) entitled COMBINED GOLF TEE
MARKER AND RECEPTACLE illustrates a half spherical marker having a single
spike.

SUMMARY OF THE INVENTION

10 Aspects of the present invention relate generally to stackable markers which are
easily picked-up and placed into the ground.

15 According to an aspect of the present invention there is provided a golf tee marker
which comprises a ground engaging portion; a body surmounting the ground
engaging portion and having in a top surface thereof a well for receiving therein a
ground engaging portion of another marker for stacking markers; the well having a
drain hole to avoid accumulation of liquid therein.

20 The well may be configured to facilitate entry and fitting of the ground engaging
portion, such as a spike, for instance by having inwardly inclined side walls. Disposed
beneath the body, within the body's perimeter and at a distance therefrom, there may
be a flange parallel with the underside of the body. The flange may or may not be
separated from the body. Since the flange is within the perimeter of the underside
of the body, there is a rim around the underside of the body which provides a surface
25 for lifting the marker out of the ground. The flange may assist with the placement of
the marker. Beneath the body there may be disposed a protective member such as
a rubber washer to cushion impact and prevent direct contact between the bodies of
the markers upon stacking and thereby mitigate wear.

30 The spike well may be slightly deeper than the portion of a spike of another marker
which may be inserted in the well, for instance, about 2mm deeper. The drain hole
may advantageously run from the bottom of the well to the rim on the underside of the
body. The exit of the drain hole is advantageously positioned such that, when
markers are vertically stacked, liquid exiting the drain hole will not enter into the

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marker below. The ground engaging portion may be a spike which is threadingly engaged into the underside of the body.

5 According to another aspect of the present invention, there is provided a golf tee marker which comprises at least one spike for spiking into the ground; a body surmounting the at least one spike having a spike well in an upper surface thereof for receiving therein a spike or spikes of another marker for stacking; the spike well having a drain hole to avoid accumulation of liquid therein; the spike well having inwardly inclined side walls to facilitate entry and fitting of a spike; a fixed or
10 detachable flange attached beneath the underside of the body and within the body's perimeter, to assist placement of the marker; a resilient washer disposed beneath the body for inhibiting direct contact between the bodies of stacked markers.

The marker may be a golf tee box marker or otherwise, such as markers for
15 delineating a temporary or permanent pathway or driveway, for instance on a grass field or other surface. The markers could be used for delineating lawn bowling lanes. The markers could have means of illumination or means of receiving illuminating means for improved visibility in low light, for instance for night golf. The marker could have slots therein to accommodate yellow warning tape or the like for enhanced
20 delineation.

According to a further aspect of the present invention, there is provided a pick-up and placement cylinder for stacking golf tee markers as described above which comprises an elongated cylindrical housing for housing markers therein and having an opening
25 at an end thereof for allowing ingress and egress of markers; and means to selectively gather and place the markers.

According to yet another aspect of the present invention, there is provided a pick-up and placement cylinder for stacking markers of the type described above which
30 comprises a housing for housing markers in a cavity formed by the housing and having a closed end and an opening at an opposite end thereof for allowing ingress and egress of the markers; a gear disposed at the closed end for rotating a plurality of gears attached to a plurality of rods running lengthwise of the housing and outside of the cavity; a plurality of top and bottom catches connected to each of the rods for

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allowing selective entrance, exit and manipulation of the markers by jutting in and out of the cavity, the bottom catches being adjacent to the cylinder opening and the top catches being spaced therefrom a distance less than the height of a marker; the catches having first, second and third positions, wherein in the first position, the bottom catches are retracted to allow a marker to enter and exit the cylinder and the top catches jut out into the cylinder cavity to act as a stop for markers having their undersides below the level of the top catches; in the second position, the top catches are retracted to allow a marker to drop down which will be caught by the bottom catches jut out; and in the third position the bottom catches jut out so as to be positioned between a flange and an underside of a marker and bear down upon the flange, pushing the marker into the ground.

According to a still further aspect of the present invention, there is provided a transport and storage tube for stacking golf tee markers of the type described above, comprising a cavity for holding stacked markers therein, a handle pivotably attached to an open end of the tube for receiving markers therein, the tube having a closed end having a recess formed therein for receiving a spike of a marker.

According to still another aspect of the present invention, there is provided a cabinet for storing the transport and storage tubes, the cabinet having compartments for receiving the transport and storage tubes. The cabinet may be mounted on wheels and towed behind a vehicle or handled with a forklift, sling or the like.

According to another aspect of the present invention, there is provided a golf course vehicle attachment for pick-up and placement of golf tee markers of the type described above, the attachment comprising a three dimensionally movable arm for pivotable attachment to the vehicle attachment and means for holding a pick-up and placement cylinder and means for selectively manipulating the markers therein as required to pick-up up and place the markers.

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BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be described below with reference to the accompanying drawings, in which:

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Figure 1 is a side view of a marker of an embodiment of the present invention;

Figures 2 and 3 are top and bottom views respectively of the marker of Figure 1;

5 Figure 4 is a side view of a pick-up and placement cylinder of the present invention;

Figures 5 and 6 are top cutaway views of the cylinder of Figure 4;

10 Figure 7 is a side view of a transport and storage tube for stacking golf tee markers of the present invention;

Figures 8 and 9 are side and top view respectively of a cabinet for storing the transport and storage tubes of Figure 7; and

15 Figures 10 to 12 are side, end and top views respectively of a mowing tractor attachment for the pick-up and placement of the markers of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

20 Referring to Figures 1 to 3, a marker (1) is shown comprising: a spike for spiking (2) into the ground; a body (3) sitting atop the spike (2) having a spike well (4) for receiving a spike of another marker therein for stacking; the spike well (4) having a drain hole (5) to avoid accumulation of water therein; the spike well (4) having inwardly inclined side walls (6) to facilitate entry and fitting of a spike; a fixed or
25 detachable flange (7) located beneath, and parallel to, the underside of the body and within the body's perimeter, to assist placement of the marker; an absorbing washer (8) disposed beneath the body (3) for inhibiting contact between bodies of stacked markers. The absorbing washer (8) may be held in place by a galvanized washer (9). The spike may be galvanized steel and may be threaded into a threaded hole (10) in
30 the body. Appropriate holes are provided in the flange (7) and washers (8 and 9) to allow passage of the spike (2) and the spike may be used to hold the washers in place by tightening spike to the galvanized washer. A rim (11) around the underside of the body provides a surface for lifting the marker out of the ground. As seen in Figure 3, drill holes (12) may be provided in the body (3) purposed to reduce the

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weight and/or material used. The name of a golf course or sponsor or other indicia may be indicated on the marker, for instance on the sloped outside wall of the marker.

- 5 Exemplary dimensions of the body are as follows: diameter of 98 mm, height of 80 mm, flange diameter of 87 mm and galvanized washer of 28 mm.

10 The marker may be a golf tee box marker or otherwise. For instance, the marker could be a distance golf marker for placement along a golf hole, a marker for other sports or games, or another type of indicator or decorative marker. The marker may be of various shapes and sizes and may be made of various materials including aluminum including recycled aluminum, rubber including recycled rubber, plastic, marble or stone.

- 15 Turning now to Figure 4 where a pick-up and placement cylinder (13) is illustrated and Figures 5 and 6 which show top cutaway views of the cylinder. The cylinder (13) comprises a cylindrical casing (14) for stacking markers (1), a catch rod (15) running lengthwise within the walls of the casing (14). The rod (15) has top and bottom catches (16 and 17 respectively) attached thereto.

20 In operation, a user turns the turn lever (18), which causes the centre turning gear (19), which is connected to a shaft and bearing (20), to turn, thereby turning the rod turning gears (21), of which there are four in this embodiment, thereby turning the catches (16 and 17) and thereby allowing selective release and insertion of the
25 markers as described below. The catches (16 and 17) are protected by a removable sleeve (22) and are vertically spaced about 6 cm from each other to accommodate markers of the size described herein. The vertical spacing could be different based on markers of different configurations.

- 30 The cylinder (13) may be made from a plurality of sections and assembled by male/female connections with or without threading thus creating an overlapping joint (23). In this way, the small tolerances for the longitudinal holes in the cylinder walls will be more easily respected.

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The gears (19 and 21) are mounted on a top plate (24) and are covered by a cylinder cap (25). A handle (26) is attached to the casing (14) for ease of use.

5 As seen in Figure 5, the rod turning gear is held in place by collar and cotter key or set screw arrangement (27) for easy removal, and screws (28) hold the cylinder cap (25) in place.

10 With reference to Figure 6, the operation of the cylinder is described. Three of the four sets of catch rods are shown, where "B" indicates the bottom catch rod, and "T" indicates the top catch rod. Although each set of catch rods will always be in the same position as the other sets of catch rods, in Figure 6, three different positions (1, 2 and 3) are shown for illustrative purposes. The top and bottom catches are fixed to the same catch rod but at different orientations.

15 In position 1, "B" is within the casing allowing a marker to enter and exit the cylinder. "T" juts out into the cylinder cavity to act as a stop for markers having their undersides below the level of the top catches.

20 In position 2, "T" is within the casing to allow a marker to drop down which will be caught by "B" which juts out in this position.

In position 3, "B" juts out so as to be positioned between the flange and underside of a marker and bears down upon the flange, pushing the marker into the ground. Next the catches are returned to position 1 which retracts "B", releasing the marker.

25 In addition, a fourth position (not shown) can be included. In position 4, "B" and "T" are within the casing allowing two or more markers to freely move upward inside the cylinder. Next, the catches are returned to position 2 which "B" juts out of position to stop the markers from exiting the cylinder.

30 In Figure 7, a transport and storage tube for stacking golf tee markers is illustrated. The tube (29) may be made of standard PVC (Polyvinylchloride) or other suitable material. The tube (29) has a handle (30) attached and is pivotable about a set of bolts with dome nuts or other suitable means. The tube is open at the top end for

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receiving markers (1) therein and the handle (30) can be rotated out of the way of the opening. The bottom end of the tube has a rubber cushion (32) and bottom plug (33) with a hole for receiving the spike of a marker and is held in place by screws (34). The purpose of this tube is to hold the markers for easy storage, transport, pick-up
5 and distribution. Preferably, one tube holds markers for one golf hole, usually eight markers which simplifies the distribution of markers. The tubes may have the hole numbers indicated thereon or other indicia.

10 In Figures 8 and 9, a cabinet for storing the transport and storage tubes of Figure 7 is illustrated. The cabinet has a base (35) and a lid (36) with a handle (37). Inside the base (35) are compartments (38) for receiving the transport and storage tubes. The lid (36) may be detached from the base. The cabinet may be mounted on wheels and towed behind a vehicle or handled with a forklift, sling or the like. The cabinet may be made of plywood or other suitable material.

15 In Figures 10 to 12, a mowing tractor attachment for pick-up and placement of markers is illustrated. The attachment is designed to pick up the markers and hold them while the tee box area is mowed and to then position the markers in the desired location. The mowing tractor attachment could be attached under the driver's seat
20 or other appropriate location of a ride-on mower or other suitable vehicle. The attachment is hooked into the hydraulic system of the mower and directional control valves for it's hydraulic hydraulics are mounted, either on the dash of the mower or on the attachment itself. Mowers may require additional hydraulic capacity to function in this way.

25 Referring to Figure 10, a telescoping hydraulic cylinder (39), is attached at a pivot point (40) to the base of the vehicle attachment and holds the pick-up and placement cylinder (13) at the other end thereof. The hydraulic cylinder (39) is moved vertical by way of another telescoping hydraulic cylinder (41). In Figure 10, the fully extended
30 and retracted positions (dotted lines) are shown. The hydraulics of the mower (44) are also shown in Figure 10 as well as the ground level (45). Hydraulic hoses have been omitted from the drawings for greater clarity.

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As seen in Figure 11, the hydraulic cylinder (39), as seen in Figure 10, is moved side to side by yet another hydraulic cylinder (42). A centre (43) and two side positions (dotted lines) are shown. The vertical motion is illustrated by a down position (46) and an up position (47). A cover (48) of the attachment is illustrated along with the base of the attachment (49) and the other pivot point and cylinder (50).

As seen in Figures 10 and 12, a square turn rod (51) is attached to the hydraulic cylinder (39), which when turned, moves the centre turning gear (19) from Figure 5, to any one of the three positions. As the hydraulic cylinder (39) is extended, the turn rod (51) slides through a rod guide and turner (52) which can be turned by control cables referred to as a flex turn cable (53) and catch rod turn lever (54) seen in Figure 10, mounted on the top of the tractor attachment.

In operation, an operator uses the hydraulic controls to manipulate the position of the maker carrying cylinder as required to pick-up up and place the markers.

The base of the attachment (49) is preferably made of standard 12 in. aluminum or other channel stock. The two large hydraulic cylinders (39 and 42) are preferably made of standard stock with a minimum of 44 in. stroke.

It can be seen from the illustrations and descriptions heretofore that the device as taught herein provides an advance in the art. The advantages realized by this invention which have been discussed herein are in no way intended to provide an exhaustive list thereof and therefore other features and advantages may exist and/or be discovered by working of, or experimenting with, the present invention.

The foregoing are exemplary embodiments of the present invention and a person skilled in the art would appreciate that modifications to these embodiments may be made without departing from the scope of the invention.

INDUSTRIAL APPLICABILITY

The golf tee marker system of the present invention provides a quick and easy system for placing, picking up and storing golf tee markers. This system allows for

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- golf tee markers to be easily removed and conveniently stored at the end of each day to prevent potential damage and vandalism after the golf course is closed. In addition, the golf tee markers can easily be picked up and placed by use of the mowing tractor attachment to allow for riding mowers to be used in the daily maintenance of the tee boxes.
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